UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

		Application No.	Applicant(s)
Office Action Summary		10/659,739	BESER, NURETTIN BURCAK
		Examiner	Art Unit
		Hoang-Vu A. Nguyen-Ba	2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

> A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
> - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
> - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
> - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
> Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This action is responsive to the amendment filed April 17, 2008.

2.   Claims 1-41 are pending. Claims 1, 9, 17, 22, 27, 30, 33, 37 and 41 are independent
claims.

Response to Amendments

3.   Per Applicant's request, Claims 1-17, 21-22, 25-27, 29-30, 33, 36-37 and 40-41 have
been amended.

Response to Arguments

4.   Applicant's arguments have been fully considered but are moot in view of the new
grounds of rejection presented hereinafter.

Claim Rejections – 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form
the basis for the rejection under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before
the invention by the applicant for patent, or

(2) a patent granted on an application for patent by another filed in the United States before the invention
by the applicant for patent, except that an international application filed under the treaty defined in section 351(a)
shall have the effects for the purposes of this subsection of an application filed in the United States and was
published under Article 21(2) of such treaty in the English language.

6.   Claims 17-21 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent
No. 6,891,858 to Mahesh et al. ("Mahesh").

Claim 17

Mahesh discloses at least *a method of controlling transmission characteristics of cable modems, comprising:*

monitoring upstream transmission quality of one or more cable modems (see at least FIGs. 2-3)*; and*

commanding at least one of the one or more cable modems to change its transmission characteristics based on the monitored quality, including changing from a first preamble length to a second different preamble length (see at least FIG. 4; it should be noted that in the conventional DOCSIS systems, a modulation profile may define a number of parameters to be used by a cable modem when communicating with the CMTS such as, modulation type, preamble – 2:31-58; e.g., the length of the preamble is deemed inherently set with the specified preamble – because without the set preamble the cable modem could not communicate with the CMTS with a different modulation profile – 4:52-63).

Claim 18

The rejection of base claim 17 is incorporated. Mahesh further discloses *commanding the at least one of the one or more cable modems to transmit on a different upstream virtual channel based on the monitored quality* (see at least FIGs. 2-4 and discussion in Claim 1 related to virtual channels).

Claim 19

The rejection of base claim 17 is incorporated. Mahesh further discloses *wherein commanding at least one of the one or more modems to change its transmission characteristics comprises:*

commanding the at least one of the one or more modems to change its modulation based on the monitored quality (see at least FIGs. 2-4)

Claim 20

The rejections of the respective base claim and intervening claim are incorporated.

Mahesh further discloses *commanding the at least one of the one or more modems to change*

from quadrature phase shift keying (QPSK) modulation to at least one of 16 quadrature

amplitude modulation (16QAM), 8 QAM, 32QAM and 64QAM (see at least FIG. 2, step 212).

Claim 21

The rejection of the respective base claim is incorporated.   Mahesh further discloses

wherein the quality comprises at least one of bit-error-rate and signal-to-noise ration (see at

least FIGs. 2-4; e.g., SNR and FEC).

Claim Rejections – 35 USC § 103

7.   The following is a quotation of the 35 U.S.C. § 103(a) which form the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth
> in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not negatived by the manner
> in which the invention was made.

8.   Claims 1-16 and 22-41 are rejected under 35 U.S.C. § 103(a) as being unpatentable over

U.S. Patent No. 6,891,858 to Mahesh et al. ("Mahesh") in view of U.S. Patent No. 7,039,939 to

Millet et al. ("Millet").

Claim 1

Mahesh discloses at least:

setting a modem to transmit on a first upstream channel on a first frequency using first

transmission characteristics (see at least 5:20-28);

monitoring a quality of upstream transmission from the modem on the first upstream channel (see at least FIGs. 2-3).

Mahesh does not specifically disclose:

setting the modem to transmit on a second different upstream channel on a second different frequency using second transmission characteristics based on the monitored quality.

However, in an analogous art, Millet teaches a method and system for creating virtual upstream channels for enhanced lookahead channel parameter testing wherein a lookahead logical receiver is used at the headend to determine whether a potential alternative frequency is better than the frequency presently being used. The logical receiver receives upstream data from a selected test modem using an alternative upstream frequency. It is then determined whether the alternative upstream is preferable over the frequency presently being used. If it is determined that the alternative frequency is preferred, a selected modem hops over to the alternative frequency (see at least the Abstract and FIG. 4, steps 412-406-408-410 and FIG. 6).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Millet in Mahesh because the use of Millet would improve the quality of received upstream data at the headend and optimize the use of cable modem bandwidth in Mahesh.

Claim 9

Mahesh discloses at least *a cable modem termination system* (see at least FIG. 5, device 804)*, comprising:*

a memory configured to store instructions (see at least FIG. 5, component 857)*;*

a communication interface (see at least FIG. 5, component 820) *configured to:*

receive transmissions comprising first transmission characteristics from a modem on a first upstream channel on a first frequency (see at least FIG. 5, function performed by devices 812, 814; 5:20-28)*, and*

measure a quality of the received upstream transmissions from the modem (see at least FIGs. 2-3)*; and*

a processor configured to execute the instructions in the memory (see at least FIG. 5, component 855) *to:*

> *monitor the measured quality of the received transmissions* (see at least FIGs. 2-3).

Mahesh does not specifically disclose:

> *send a message, via the communication interface, instructing the modem to transmit on second different upstream channel on a second different frequency using second transmission characteristics based on the monitored quality.*

However, in an analogous art, Millet teaches a method and system for creating virtual upstream channels for enhanced lookahead channel parameter testing wherein a lookahead logical receiver is used at the headend to determine whether a potential alternative frequency is better than the frequency presently being used. The logical receiver receives upstream data from a selected test modem using an alternative upstream frequency. It is then determined whether the alternative upstream is preferable over the frequency presently being used. If it is determined that the alternative frequency is preferred, a selected modem hops over to the alternative frequency (see at least the Abstract and FIG. 4, steps 412-406-408-410 and FIG. 6; it is noted that the claimed message sent is taught in Millet as the UCC command – upstream channel change command).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Millet in Mahesh because the use of Millet would improve the quality of received upstream data at the headend and optimize the use of cable modem bandwidth in Mahesh.

Claim 22

Mahesh discloses at least *a cable modem termination system* (see at least FIG. 5, device 804), *comprising:*

a memory configured to store instructions (see at least FIG. 5, component 857); *and*

a processor configured to execute the executions in the memory (see at least FIG. 5, component 855).

Mahesh does not specifically disclose:

instruct at least one of the one or more cable modems to change its transmission characteristics, including changing from a first time division multiplexed timeslot size to a second different time division multiplexed timeslot size, when the monitored quality meets a specified criteria.

However, in an analogous art, Millet teaches a method and system for creating virtual upstream channels for enhanced lookahead channel parameter testing wherein a lookahead logical receiver is used at the headend to determine whether a potential alternative frequency is better than the frequency presently being used. The logical receiver receives upstream data from a selected test modem using an alternative upstream frequency. It is then determined whether the alternative upstream is preferable over the frequency presently being used. If it is determined that the alternative frequency is preferred, a selected modem hops over to the alternative frequency (see at least the Abstract and FIG. 4, steps 412-406-408-410 and FIG. 6; it is noted that the claimed message sent is taught in Millet as the UCC command – upstream channel change command).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Millet in Mahesh because the use of Millet would improve the quality of received upstream data at the headend and optimize the use of cable modem bandwidth in Mahesh.

Claim 27

Mahesh discloses *a method of changing transmission characteristics at a modem in a cable modem system, comprising:*

transmitting on a first channel on a first frequency (see at least 11:32-44);

receiving a command to select different upstream transmission characteristics (see at least FIG. 4 and 11:14-24);

selecting the different upstream transmission characteristics in accordance with the command (see at least FIG. 4 and 11:14-24).

Mahesh does not specifically disclose:

transmitting on a second different upstream channel on a second different frequency using different upstream transmission characteristics (see at least FIG. 4 and 11:25-31).

However, in an analogous art, Millet teaches a method and system for creating virtual upstream channels for enhanced lookahead channel parameter testing wherein a lookahead logical receiver is used at the headend to determine whether a potential alternative frequency is better than the frequency presently being used. The logical receiver receives upstream data from a selected test modem using an alternative upstream frequency. It is then determined whether the alternative upstream is preferable over the frequency presently being used. If it is determined that the alternative frequency is preferred, a selected modem hops over to the alternative frequency (see at least the Abstract and FIG. 4, steps 412-406-408-410 and FIG. 6; it is noted that the claimed message sent is taught in Millet as the UCC command – upstream channel change command).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Millet in Mahesh because the use of Millet would improve the quality of received upstream data at the headend and optimize the use of cable modem bandwidth in Mahesh.

Claim 30

Mahesh discloses at least *a cable modem* (see at least FIG. 1, device 120).

Although, Mahesh does not explicitly show:

> *a memory configured to store instructions;*
>
> *a communication interface configured to receive an instruction to select different upstream transmission characteristics; and*
>
> *a processing unit.*

However, these devices are deemed inherent to Mahesh and well-known in the art (see FIG. 3 - Prior Art - of U.S. Patent No. 6,898,755 to Hou, same assignee with the instant application; it should be noted that Hou is not applied as a secondary art of record but is merely used to show that the claimed features are admitted by applicant to be known in the art). Without these components, the cable modems of Mahesh cannot change the modulation profile as shown in FIGs. 2-4 of Mahesh.

Mahesh further discloses the processing unit of the cable modem to:

transmit on a first upstream channel on a first frequency (see at least 11:32-44),

select the different upstream transmission characteristics in accordance with the instruction (see at least FIG. 4 and 11:14-24).

Mahesh does not specifically disclose:

initiate transmission on a second different upstream channel on a second different frequency using different upstream transmission characteristics (see at least FIG. 4 and 11:25-31).

However, in an analogous art, Millet teaches a method and system for creating virtual upstream channels for enhanced lookahead channel parameter testing wherein a lookahead logical receiver is used at the headend to determine whether a potential alternative frequency is better than the frequency presently being used. The logical receiver receives upstream data from a selected test modem using an alternative upstream frequency. It is then determined whether the

alternative upstream is preferable over the frequency presently being used. If it is determined that the alternative frequency is preferred, a selected modem hops over to the alternative frequency (see at least the Abstract and FIG. 4, steps 412-406-408-410 and FIG. 6; it is noted that the claimed message sent is taught in Millet as the UCC command – upstream channel change command).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Millet in Mahesh because the use of Millet would improve the quality of received upstream data at the headend and optimize the use of cable modem bandwidth in Mahesh.

Claim 33

Mahesh discloses at least *a method of changing virtual upstream channels in a cable modem system, comprising:*

monitoring upstream signal qualities associated with one or more cable modems (see at least FIGs. 2-3).

Mahesh does not specifically disclose:

selectively switching at least one of the one or more cable modems between different virtual upstream channels with different frequencies based on the signal quality monitoring.

However, in an analogous art, Millet teaches a method and system for creating virtual upstream channels for enhanced lookahead channel parameter testing wherein a lookahead logical receiver is used at the headend to determine whether a potential alternative frequency is better than the frequency presently being used. The logical receiver receives upstream data from a selected test modem using an alternative upstream frequency. It is then determined whether the alternative upstream is preferable over the frequency presently being used. If it is determined that the alternative frequency is preferred, a selected modem hops over to the alternative frequency (see at least the Abstract and FIG. 4, steps 412-406-408-410 and FIG. 6; it is noted

that the claimed message sent is taught in Millet as the UCC command – upstream channel change command).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Millet in Mahesh because the use of Millet would improve the quality of received upstream data at the headend and optimize the use of cable modem bandwidth in Mahesh.

Claim 37

Mahesh discloses at least *a cable modem termination system* (see at least FIG. 5, device 804)*, comprising:*

a memory configured to store instructions (see at least FIG. 5, component 857)*;*

a communication interface (see at least FIG. 5, component 820) *configured to:*

> *measure signal qualities of upstream transmissions associated with one or more cable modems* (see at least FIGs. 2-3)*; and*

a processor configured to execute the instructions in the memory (see at least FIG. 5, component 855) *to:*

> *monitor the measured quality of the received transmissions* (see at least FIGs. 2-3).

Mahesh does not specifically disclose:

> *selectively command at least one of the one or more cable modems to switch between different virtual upstream channels based on the signal quality monitoring.*

However, in an analogous art, Millet teaches a method and system for creating virtual upstream channels for enhanced lookahead channel parameter testing wherein a lookahead logical receiver is used at the headend to determine whether a potential alternative frequency is better than the frequency presently being used. The logical receiver receives upstream data from

a selected test modem using an alternative upstream frequency. It is then determined whether the alternative upstream is preferable over the frequency presently being used. If it is determined that the alternative frequency is preferred, a selected modem hops over to the alternative frequency (see at least the Abstract and FIG. 4, steps 412-406-408-410 and FIG. 6; it is noted that the claimed message sent is taught in Millet as the UCC command – upstream channel change command).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Millet in Mahesh because the use of Millet would improve the quality of received upstream data at the headend and optimize the use of cable modem bandwidth in Mahesh.

Claim 41

Mahesh discloses at least *a system for controlling transmission characteristics of a cable modem* (see at least FIG. 1)*, comprising:*

means for sending an upstream channel descriptor to one or more cable modems (see at least 11:32-44)*;*

means for monitoring upstream transmission quality of the one or more cable modems (see at least FIGs. 2-4).

Mahesh does not specifically disclose:

means for commanding at least one of the one or more cable modems to change its transmission characteristics, including changing from a first data block size to a second different data block size, based on the sent upstream channel descriptor and the monitored quality.

However, in an analogous art, Millet teaches a method and system for creating virtual upstream channels for enhanced lookahead channel parameter testing wherein a lookahead logical receiver is used at the headend to determine whether a potential alternative frequency is better than the frequency presently being used. The logical receiver receives upstream data from a selected test modem using an alternative upstream frequency. It is then determined whether the

alternative upstream is preferable over the frequency presently being used. If it is determined
that the alternative frequency is preferred, a selected modem hops over to the alternative
frequency (see at least the Abstract and FIG. 4, steps 412-406-408-410 and FIG. 6; it is noted
that the claimed message sent is taught in Millet as the UCC command – upstream channel
change command).

It would have been obvious to a person of ordinary skill in the art at the time the
invention was made to use Millet in Mahesh because the use of Millet would improve the quality
of received upstream data at the headend and optimize the use of cable modem bandwidth in
Mahesh.

Claims 2 and 10

The rejection of the respective base claim is incorporated. The Mahesh-Millet
combination further discloses:

determining whether the quality of the modem upstream transmission is inadequate (see
at least FIG. 2)*; and*

> *setting the second transmission characteristics to more robust transmission*
> *characteristics based on the determination* (Mahesh; see at least FIGs. 2-4; 11:32-44).

Claims 3 and 11

The rejection of the respective base claim is incorporated. The Mahesh-Millet
combination further discloses:

> *determining whether the quality of the modem upstream transmissions is*
> *greater than a threshold* (Mahesh; see at least FIG. 2); and
> *setting the second transmission characteristics to better performing transmission*
> *characteristics based on the determination* (Mahesh; see at least FIGs. 2-4).

Claims 4 and 12

Rejections of the respective base claim and intervening claim are incorporated.   The
Mahesh-Millet combination further discloses *wherein the first transmission characteristics*
comprise one of 16 quadrature amplitude modulation (16QAM), 8QAM, 32QAM and 64 QAM,
and the second transmission characteristics comprise quadrature phase shift keying (QPSK)
modulation (Mahesh; see at least FIGs. 2-4; 5:39-60).

Claims 5, 13, 35, 36, 39 and 40

Rejections of the respective base claim and intervening claim are incorporated.   The
Mahesh-Millet combination further discloses *wherein the first transmission characteristics*
comprise quadrature phase shift keying (QPSK) modulation and the second transmission
characteristics comprise at least one of 16 quadrature amplitude modulation (16QAM), 8QAM,
32QAM and 64QAM (Mahesh; see at least FIGs. 2-4; 5:39-60).

Claims 6 and 14

The rejection of the respective base claim is incorporated. The Mahesh-Millet
combination does not specifically disclose *wherein the first upstream channel comprises a first*
time division of a first frequency (Mahesh; see at least 14:33-42 and discussion related to
modulation profiles in Claim 1).

Claims 7 and 15

Rejections of the respective base claim and intervening claim are incorporated.   The
Mahesh-Millet combination further discloses *wherein the second upstream channel comprises a*
second time division of the first frequency (Mahesh; see at least 14:33-42 and discussion related
to modulation profiles in Claim 1).

Claims 8, 16 and 26

The rejection of the respective base claim is incorporated.   The Mahesh-Millet combination further discloses *wherein the quality comprises at least one of bit-error-rate and signal-to-noise ration* (Mahesh; see at least FIGs. 2-4; e.g., SNR and FEC).

Claims 18 and 23

The rejection of base claim 17 is incorporated. The Mahesh-Millet combination further discloses *commanding the at least one of the one or more cable modems to transmit on a different upstream virtual channel based on the monitored quality* (Mahesh; see at least FIGs. 2-4 and discussion in Claim 1 related to virtual channels).

Claims 19 and 24

The rejection of base claim 17 is incorporated. The Mahesh-Millet combination further discloses *wherein commanding at least one of the one or more modems to change its transmission characteristics comprises:*

commanding the at least one of the one or more modems to change its modulation based on the monitored quality (Mahesh; see at least FIGs. 2-4)

Claims 20 and 25

Rejections of the respective base claim and intervening claim are incorporated. The Mahesh-Millet combination further discloses *commanding the at least one of the one or more modems to change from quadrature phase shift keying (QPSK) modulation to at least one of 16 quadrature amplitude modulation (16QAM), 8 QAM, 32QAM and 64QAM* (Mahesh; see at least FIG. 2, step 212).

Claims 28, 31, 34 and 38

The rejection of the base claim is incorporated. The Mahesh-Millet combination further

discloses *receiving a plurality of messages, each message describing different transmission*

characteristics (Mahesh; see at least FIG. 4 and 11:14-24).

Claims 29 and 32

The rejection of the base claim is incorporated. The Mahesh-Millet combination further

discloses *wherein the command indicates the use of one of the plurality of messages for selecting*

different upstream transmission characteristics (Mahesh; see at least FIG. 4 and 11:14-44).

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to Applicant's

disclosure.

10.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from

the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the

mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on

the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory

period for reply expire later than SIX MONTHS from the mailing date of this final action

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hoang-Vu "Antony" Nguyen-Ba whose telephone number is

(571) 272-3701. The examiner can normally be reached on Tuesday-Friday from 7:00 am to 5:30 pm.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, John Miller can be reached at (571) 272-7353.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2600 Group receptionist (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

/Hoang-Vu Antony Nguyen-Ba/

Primary Examiner, Art Unit 2623

July 18, 2008